Combining a Comprehensive Physical Therapy Program and Electroshock Therapy for a Patient with Plantar Fasciitis: A Case Report

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Background

- Plantar fasciitis (PF) affects 2 million Americans per year and 10% of the population over a lifetime.[1]
- PF is inflammation to the thick, fibrous connective tissue originating on the medial calcaneal tubercle extending to the metatarsal heads of the foot.[2,3]
- A comprehensive physical therapy (PT) plan of care (POC) of proximal strengthening, distal stretching and soft tissue massage (STM) has been shown to improve PF symptoms.
- Extracorporeal shockwave therapy (ESWT) is a non-invasive modality that uses sound waves to create a controlled microtrauma to the impaired tissue to stimulate a healing response and micro vascularization.[4]
- ESWT has shown to be effective in patients with PF, but has not been used in conjunction with a comprehensive PT program.

Purpose

The purpose of this case report was to investigate the recovery of a patient with PF while using a combined approach of conventional therapy, targeted hip strengthening, and electroshock therapy.

Case Description

- The patient was a 48-year-old female presenting with right plantar fasciitis.
- She underwent one treatment of ESWT two months prior to initial evaluation.
- She was scheduled for additional ESWT treatment after PT.
- The patient had a history of failed PT for the same injury last year.
- She reported pain as an aching/dull/throbbing sensation with sharp pains during ambulation
- Patient described difficulty with weight bearing activities including walking, stairs, running, and standing on her feet at work.

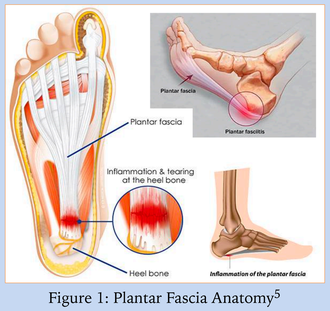


Figure 1: Plantar Fascia Anatomy[5]

Timeline

History of Treatment
- Prior physical therapy for 3 months
- ESWT done one month prior to initial evaluation
- Referred to physical therapy

Initial Evaluation
- Tenderness along medial and origin of plantar fascia, calcaneus, and along dorsal foot metatarsals 2-4
- Trendelenburg left hip

Visits 1-2
- Initiation of manual therapy
- Arch tape trial
- Initiation of stretching to patient tolerance
- Home exercise program (HEP) given to patient

Visits 3-4
- Progression of HEP
- Progression of therex to include more strengthening
- Talocrural joint mobilizations to improve range of motion (ROM)

Visits 5-6
- Introduction of intensive hip strengthening program
- Progression of digital distraction to improve ROM for gait mechanics

Visits 7-8
- Re-evaluation of outcome measures
- Repeat ECSW Therapy to be completed 1 month after final re-evaluation

Interventions

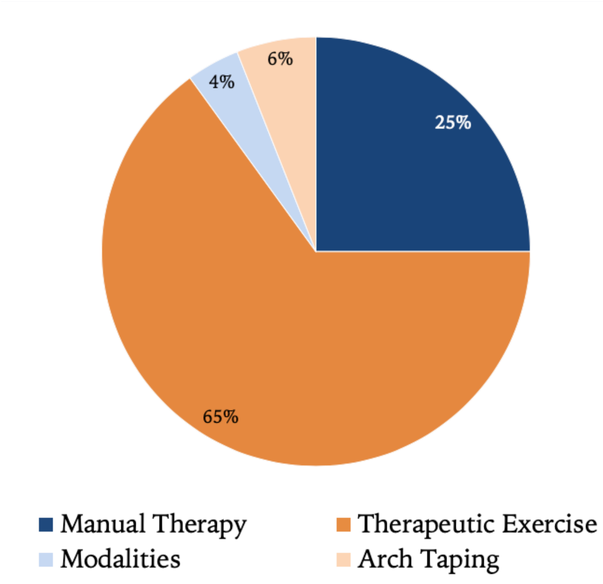


Figure 2: Therapeutic Interventions

Manual Therapy:
- Soft tissue massage to gastrocnemius/soleus
- Great toe extension stretch
- Talocrural anterior-posterior mobilizations grade 2-3
- Digital distraction

Therapeutic Exercise:
- Towel scrunches
- Ankle 4 way theraband
- Great toe stretch with ankle 90 degrees
- Runner stretch with bent knee
- Myofascial release stick to gastrocnemius, anterior tibialis, and hamstrings
- Marble pick-ups
- Lateral walking with theraband
- Single leg stance balance on Airex®
- Bilateral side lying clamshells

Modalities:
- GameReady®
- Ice foot roll

Arch Taping:
- Medial longitudinal arch tape

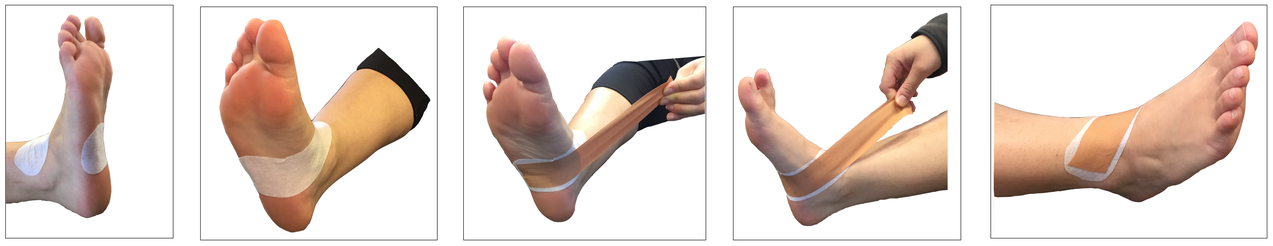
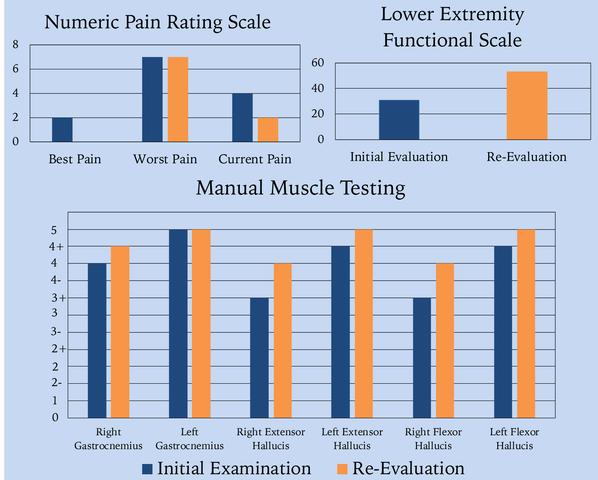


Figure 3: Medial Longitudinal Arch Taping

Outcomes



- Palpation tenderness was only present over PF insertion.
- The patient's gait no longer demonstrated a positive Trendelenburg on the left side upon re-evaluation.

Conclusion

- A comprehensive physical therapy program including targeted hip strengthening and ESWT therapy for a patient with PF resulted in increased functional abilities, increased strength, and a decrease in pain.
- While there is limited research about ESWT therapy for the treatment of PF, when combined with conventional therapy, there was a positive outcome.
- Additional research is necessary to determine the effectiveness of targeted hip strengthening and extracorporeal shockwave therapy specifically for chronic cases of PF.

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